

Application Serial No.: 09/733,788
Attorney Docket No.: 0190143

List of Claims:

Claim 1 (Currently Amended): A color imaging system comprising:
a color imager having a plurality of photocells producing electrical responses that correspond to chromatic intensity values, and the electrical responses from the plurality of photocells together comprising a captured color image; and
an image processor that white-balances the captured color image to generate a white-balanced color image by multiplying each red, green or blue photocell value by one of red, green or blue white-balance coefficients, respectively, and without interpolating each red, green or blue photocell value with values from other photocells, wherein each of the red, green or blue white-balance coefficients varies based on lighting conditions;
wherein the image processor determines whether the white-balanced color image is substantially gray-scale, and if so, the image processor converts each of the chromatic intensity values to a gray-scale luminance value.

Claims 2-4 (Cancelled)

Claim 5 (Previously Presented): The color imaging system of claim 1, wherein the image processor is further configured to determine whether the white-balanced color image is substantially black-and-white, and if so, the image processor converts each of the chromatic intensity values as a black-and-white luminance value.

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Claim 6 (Original): The color imaging system of claim 1, wherein the color image capture device is a scanner having a constant, known light source.

Claim 7 (Original): The color imaging system of claim 1, wherein the color image capture device and image processing circuitry are disposed within a single device.

Claim 8 (Original): The color imaging system of claim 1, further comprising a switch that allows a user to select from among a plurality of white-balance settings.

Claim 9 (Previously Presented): The color imaging system of claim 1, further comprising an image-type specification control that allows a user to select from among a plurality of image formats that determines how the image processor converts the white-balanced color image.

Claims 10-15 (Cancelled)

Claim 16 (Currently Amended): A method of processing a color image that is captured by a plurality of photocells producing electrical responses that correspond to a plurality of chromatic intensity values, the method comprising:

white-balancing the plurality of chromatic intensity values to generate a white-balanced color image by multiplying each red, green or blue photocell value by one of

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red, green or blue white-balance coefficients, respectively, and without interpolating each red, green or blue photocell value with values from other photocells, wherein each of the red, green or blue white-balance coefficients varies based on lighting conditions;

determining whether the white-balanced color image is a substantially gray-scale image; and

converting the plurality of chromatic intensity values to a plurality of gray-scale luminance values if the plurality of chromatic intensity values are determined to be a substantially gray-scale image.

Claim 17 (Cancelled)

Claim 18 (Previously Presented): The method of claim 16, further comprising detecting whether the image is a substantially black-and-white image, and if the image is detected to be a substantially black-and-white image, converting the plurality of chromatic intensity values to a plurality of black and white values.

Claim 19 (Previously Presented): The method of claim 16, further comprising the steps of computing mean and standard deviation values of a color saturation distribution of the image, and comparing the mean and standard deviation values to a plurality of threshold values to detect whether the image is substantially gray-scale.

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Claim 20 (Previously Presented): The method of claim 18, further comprising the steps of computing mean and standard deviation values of a luminance distribution of the image and comparing the mean and standard deviation values to a plurality of threshold values to detect whether the image is a substantially black and white image.

Claims 21-23 (Cancelled)

Claim 24 (New): The color imaging system of claim 1, wherein the lighting conditions include overcast sky, fluorescent bulb, direct sunlight and incandescent bulb.

Claim 25 (New): The color imaging system of claim 1, wherein each of the red, green or blue white-balance coefficients are obtained by sampling a color space and applying an error minimization formula.

Claim 26 (New): The method of claim 16, wherein the lighting conditions include overcast sky, fluorescent bulb, direct sunlight and incandescent bulb.

Claim 27 (New): The method of claim 16, wherein each of the red, green or blue white-balance coefficients are obtained by sampling a color space and applying an error minimization formula.